REMARKS/ARGUMENTS

Claims 34-36 and 42-47 were withdrawn from consideration and so not examined on the merits. Applicants have canceled these claims to correspond with the Restriction Requirement and without prejudice for re-presentation in a divisional application.

The claims have been revised to reflect the issued claim scope of the parent application 09/533,798 (now U.S. Pat. 7,148,035).

Specifically, claim 37 has been revised to include features from canceled claims 38 and 40. Claims 41 and 42 have been revised to correspond to revised claim 37.

Claim 48 has been revised to include features from canceled claim 52. Claim 53 has been revised to correspond to claim 48.

No new matter has been introduced, and entry of the revised claims is respectfully requested.

Restriction Requirement

Applicants acknowledge their election of Group I, now represented by the pending claims, and the election of SEQ ID NO:5 as a species in response to the previously presented "election of species" requirement. This does not mean, however, that Applicants consider their invention to be directed to SEQ ID NO:5. To the contrary, Applicants respectfully point out that they consider the invention to be directed to a genus of vectors, and pairs of vectors, comprising a nucleotide sequence encoding a modified human 5T4 antigen.

A generic, or genus, claim is defined at MPEP 806.04(d). Among the pending claims, at least claims 37, 39, 48-51, and 53 are generic, or genus, claims within that definition. Recognition of the presence of genus claims is important because, as noted above, Applicants regard the subject matter of the genus claims as the invention. All of the pending claims include the modified human 5T4 antigen feature disclosed in the application and claims as previously presented. Any attempt to restrict the genus to be merely species thereof would deny Applicants the ability to seek claims directed to what they regard as the invention. See *In re Weber* (580

F.2d 455, 198 USPQ 328 (CCPA 1978)) and *In re Haas* (580 F.2d 461, 198 USPQ 334 (CCPA 1978)), and the discussion at MPEP 803.02. These decisions clearly set forth that a restriction requirement cannot be used to divide a single claim, such as a genus claim. Therefore, a restriction requirement cannot be used to limit the invention to a single species, such as vectors that must encode SEQ ID NO:5.

Applicants point out that the content of the Office Action mailed October 12, 2006 reflects recognition on the part of the Office that the invention is not limited to SEQ ID NO:5. For example, both of the alleged rejections based on 35 U.S.C. § 112, first paragraph state that the "claims encompass ... a modified 5T4 antigen, including human...." Additionally, both of the alleged rejections included claims 48-53, none of which are limited to SEQ ID NO:5.

The recognition of the invention as being more than SEQ ID NO:5 is also consistent with the search strategy used in the instant application, as found online at the Patent Application Information Retrieval (PAIR) website for the instant application. The search strategy was not limited to SEQ ID NO:5. Instead, it was based upon the use of "5T4" as a search term without further limitation.

Given the nature and scope of the alleged rejections and the searches conducted, Applicants respectfully submit that the Office recognizes the claimed subject matter as encompassing more than just SEQ ID NO:5. Applicants are thus of the understanding that the claims as presented herewith, have been searched and examined according to the claimed scope. Confirmation of this understanding in the next Office Communication is respectfully requested.

Alleged Objections to the Disclosure

Applicants acknowledge the alleged objections to the disclosure as set forth on page 3 of the Office Action mailed October 12, 2006. None of the objections appear substantive or to have a bearing on claim scope or interpretation. Therefore, Applicants respectfully request that these objections be held in abeyance pending submission of a substitute specification under separate cover. With the substitute specification, Applicants will endeavor to correct possible minor errors as requested in the Office Action.

Missing Form PTO-1449

Applicants apologize for the inadvertent omission of the form PTO-1449 from the submission of August 3, 2004. That form is enclosed herewith, and Applicants respectfully request that the Examiner initial and return a copy of the form after consideration of the single cited document.

Title of the Invention

The title of the invention was objected to as "not descriptive". Applicants respectfully request that this object be held in abeyance pending final disposition of the allowable claims in this application.

Alleged New Matter

The Amendments filed February 6, 2004 and September 15, 2006 were objected to as allegedly introducing new matter into the application. Without acquiescence to this objection, and in the interest of expediting processing of the instant application, the first page of the specification has been revised as presented above. Applicants respectfully submit that this objection has been obviated and may be withdrawn.

Alleged Rejections under 35 U.S.C. §112, first paragraph

There are two rejections under 35 U.S.C. §112, first paragraph in the Action mailed October 12, 2006. The first begins on page 4 of the Action and the second on page 8. Applicants address these in turn.

First alleged rejection under35 U.S.C. §112, first paragraph

The alleged rejection beginning on page 4 asserts that the claims fail "to comply with the written description requirement." Applicants have carefully reviewed the statement of the rejection and respectfully traverse because no *prima facie* case of an inadequate written description has been presented.

As an initial matter, Applicants respectfully point out that there is clear guidance for a "strong presumption that an adequate written description of the claimed invention is present when the application is filed" as set out in the Guidelines for Examination of Patent Applications Under the 35 U.S.C. 112, ¶1, "Written Description" Requirement (Federal Register Vol. 66, No.4, 1099 January 5, 2001, see page 1105, left column and the case law cited therein). Therefore, any allegation of an inadequate written description must be sufficient to overcome this "strong presumption." Applicants respectfully submit that this standard has not been met in the instant application.

The pending claims are directed to vectors and pairs of vectors comprising nucleotide sequences that encode a modified human 5T4 antigen. The features of the encoded antigen are present in the various pending claims. For example, claim 37 is directed to an expression vector, which may be used to express, or produce, a modified human 5T4 antigen for use as described in the instant application and as claimed in parent application 09/533,798 (now U.S. Pat. 7,148,035).

Applicants respectfully submit that the proper focus of the inquiry is on the claimed invention as it would be understood by the skilled person in the field. That person would properly understand that the claims are directed to a modified human 5T4 antigen where the full sequence of the antigen is disclosed (and acknowledged in the statement of the rejection), where methods to modify a known antigen sequence are known and readily available, and where methods to produce and characterize modified antigens as containing an HLA CTL peptide epitope and/or capable of inducing an antitumor immunotherapeutic response in a subject are also known and readily available.

Additionally, the instant application provides exemplary, and representative species of human 5T4 sequences, such as those featured in claim 41, that may be encoded by the claimed vectors and so representative of the genus of vectors as claimed. A review of the full range of relevant case law as discussed at MPEP 2163IIA.3.(a)ii) indicates, contrary to the instant rejection, that there are multiple examples of precedent for even a single representative

species as being adequate support for a claimed genus (see for example, *In re Herschler*[1] and *In re Rasmussen*[2]).

Given all of the above information, Applicants respectfully submit that they have adequately disclosed the invention such that a skilled artisan would recognize that there was contemplation and appreciation, and therefore possession, of the claimed vectors.

The instant rejection, however, appears to ignore the representative sequences as presented and instead speculates that the supporting content of the instant application is insufficient because there is allegedly "no disclosure that modified 5T4 antigens encoded in the vector(s) of the claimed invention are immunogenic, either as CTL, Th or B cell epitopes" and "no disclosure that the SEQ ID NO recited in instant claim 41 … *shown to bind HLA A0201* are immunogenic, i.e., induce CTL" (italics added). But these statements indicate a requirement for an "actual reduction to practice" of the antigens encoded by the claimed vectors.

Applicants respectfully point out that it is well settled in U.S. patent law that there is no requirement for an actual "reduction to practice" of a claimed invention. Instead, constructive reduction to practice is sufficient under U.S. law to support patentability. But the instant rejection's focus on the need to demonstrate a CTL response, as indicated by the above quotes, indicates that demonstration of an actual reduction to practice of a CTL response is being required. Given the settled law in this area, Applicants respectfully submit that there is no basis for such a requirement, and so no basis for the instant rejection.

In light of the foregoing, there is simply no *prima facie* case of an inadequate written description. Accordingly, Applicants respectfully submit that this rejection may be properly withdrawn.

Second alleged rejection under35 U.S.C. §112, first paragraph

The alleged rejection beginning on page 7 asserts that the claims fail "to enable one skilled in the art … to make and/or use the invention." Applicants have carefully reviewed

[1] 591 F.2d 693, 697, 200 USPQ 711, 714 (CCPA 1979).
[2] 650 F.2d 1212, 1214, 211 USPQ 323, 326-27 (CCPA 1981).

the statement of the rejection and respectfully traverse because no *prima facie* case of non-enablement has been presented.

The claimed subject matter has been discussed above, and Applicants respectfully point out that a *prima facie* case of non-enablement requires the presence of undue experimentation. Importantly, undue experimentation is not the same as the absence of experimentation. To the contrary, even extensive experimentation, such as a large amount of repetitive or routine screening, has been held as **not undue** (see the production and screening of hybridomas as discussed in *In re Wands* as cited in the instant rejection). But the instant rejection fails to provide evidence of undue experimentation.

Instead, the rejection asserts the same two statements as quoted above:

"no disclosure that modified 5T4 antigens encoded in the vector(s) of the claimed invention are immunogenic, either as CTL, Th or B cell epitopes" and

"no disclosure that the SEQ ID NO recited in instant claim 41 ... *shown to bind HLA A0201* are immunogenic, i.e., induce CTL" (italics added).

Even if, only for the sake of argument, these statements are correct, they do not change the presumption of enablement set out in part at MPEP 2164.04 and by the cases cited therein, including the guidance provided by *In re Marzocchi*.[1] With reference to *Marzocchi*, the standard states in part that

> "A specification disclosure which contains a teaching of the manner and process of making and using an invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as being in compliance with the enablement requirement of 35 U.S.C. § 112, first paragraph, unless there is a reason to doubt the *objective* truth of the statements contained therein which must be relied on for enabling support." (underlining and italics added)

Therefore, and contrary to the instant statement of the rejection, there is a presumption of enablement such that the burden is on the part of the Office to provide *objective* reasons to defeat the presumption. Mere reliance on assertions of possibilities or conjectures is

[1] 439 F.2d 220, 169 USPQ 367 (CCPA 1971).

not enough. There must be objective reasons why undue experimentation is necessary to make and use the claimed invention.

Applicants respectfully point out that no objective reasons have been presented to doubt the fact that the skilled person in the field would expect to be able to produce the vectors as claimed without the need for undue experimentation. Simply put, there is no evidence of undue experimentation in making vectors, modifying human 5T4 antigen sequences, or screening for modified antigens as containing an HLA CTL peptide epitope and/or capable of inducing an antitumor immunotherapeutic response in a subject. Therefore, there can be no undue experimentation in making and using the claimed vectors. Accordingly, Applicants respectfully submit that no *prima facie* case of non-enablement is present. The instant rejection is thus misplaced and may be properly withdrawn.

Form 1449 filed August 23, 1999

Applicants acknowledge the Examiner's indication that certain documents cited in the Form 1449 filed August 23, 1999 have not been considered because copies could not be located in parent application 09/533,798 (now U.S. Patent 7,148,035). In the interest of expediting consideration of the cited documents, Applicants enclose herewith copies of the missing documents.

Applicants have not, however, submitted another copy of the Form 1449 because they are of the understanding that an un-initialed copy of the Form is still available through the Image File Wrapper for this application. In the event that this understanding is incorrect, Applicants are prepared to provide an un-initialed copy upon request, preferably by telephone, from the Examiner.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 858-350-6100.

Respectfully submitted,

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